



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/832,920	04/12/2001	Takakazu Tanaka	35.G2771	5232

5514 7590 12/05/2001

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

NOTE, JANIS L

ART UNIT	PAPER NUMBER
----------	--------------

1753

DATE MAILED: 12/05/2001

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/832,920

Applicant(s)

TANAKA et al

Examiner

J. DOTE

Group Art Unit

1753

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 6/27/01
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-20 is/are pending in the application.
- Of the above claim(s) 12-20 is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-11 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☒ Claim(s) 1-20 are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☒ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☒ All ☐ Some* ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) 3 ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892 ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other _____

Office Action Summary

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-11, drawn to photosensitive members, an apparatus, and a process cartridge, classified in class 430, subclass 56, class 399, subclass 159, and class 399, subclass 116, respectively.

II. Claims 12-20, drawn to method of making a photosensitive member, classified in class 430, subclass 127.

2. The inventions are distinct, each from the other because:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made by a materially different process, such as forming a photosensitive member by vapor-depositing the charge transfer triarylamine compound onto a support. See, for example, US 6,228,547 B1 (Kobayashi), col. 16, lines 47-51. This alternative method does not require dissolving the triarylamine compound in a solvent to form a coating solution as required in the invention of Group II.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter and as shown by their different classification, restriction for examination purposes as indicated is proper.

3. During a telephone conversation with Mr. Peter Saxon on Nov. 28, 2001, a provisional election was made with traverse to prosecute the invention of Group I, claims 1-11. Affirmation of this election must be made by applicants in replying to this Office action. Claims 12-20 have been withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicants are reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

5. The disclosure is objected to because of the following informalities:

The specification at page 8, lines 15-25, identifies the triarylamine compound of formula (3) as a triphenylamine compound. However, the amine groups in compound of formula (3) are not bonded to three phenyl groups. Rather, the amine groups are bonded to two phenyl groups and a fluorenyl group, which is not a phenyl group.

Appropriate correction is required.

6. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

In claim 5, the recitation "triarylamine compound is a triphenylamine compound" lacks antecedent basis in the specification. Compare page 8, line 15, to page 9, line 8, of the specification, which discloses only two specific triphenylamine compounds of formula (1) and (3), where the phenyl groups can be substituted with a hydrogen atom, an alkyl or an alkoxy group. The specification provides no indication that more general substitution is contemplated. The broad term "triphenylamine" encompasses other triphenylamine compounds substituted with other chemical groups, such as halogens, esters, amides, etc.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 is indefinite in the phrase "the triphenylamine compound is represented by formula . . . (3)" because the compound of formula (3) is not a triphenylamine compound. The amine groups in the compound of formula (3) are not bonded to three phenyl groups. Rather, the amine groups are bonded to two phenyl groups and a fluorenyl group, which is not a phenyl group.

9. Claim 8 is objected to because of the following informalities: Improper verb form in the phrase "group which may has at least one" (emphasis added). The phrase should read "group which may have at least one" (emphasis added).

Appropriate correction is required.

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,228,547 B1 (Kobayashi).

Kobayashi discloses an electrophotographic photosensitive member comprising an electrically conductive substrate and a photosensitive layer comprising a charge generation material and the charge transfer material bis(3',4'-methylenedioxy-phenyl-N-2"-naphthylamino) benzene, compound 21. Compound 21 meets the

limitation of a triarylamine compound recited in instant claim 1. See compound 21 at col. 9; Table 2, application example 5; and col. 34, lines 21-33. Compound 21 is synthesized by a method that meets the limitations recited in instant claims 1-4. Compound 21 is synthesized by reacting the amine compound N,N'-di-2-naphthyl-m-phenylenediamine with the aryl halide compound 3,4-methylene-dioxybromobenzene in the presence of the base sodium tert-butoxide and a catalyst comprising a palladium compound and the triarylphosphine compound tri-o-tolylphosphine. Example 9 at col. 32, lines 33-48. The compound tri-o-tolylphosphine meets the limitations of formula (1) recited in instant claim 1.

13. Claims 7-9 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kobayashi.

Kobayashi discloses an electrophotographic photosensitive member as described in paragraph 12 above, which is incorporated herein by reference.

Instant claims 7-9 are written in product-by-process format. These claims recite that the triarylamine compound is obtained in the presence of a catalyst comprising a particular phosphine compound. Kobayashi does not disclose that triarylamine compound 21 is obtained by a catalyst comprising the phosphine

compound recited in instant claims 7-9. However, as discussed in paragraph 12 above, Kobayashi's compound 21 is synthesized by a method that meets the limitations recited in instant claims 1-4. The instant specification contains no teachings that the triarylamines made by methods using the particular phosphines recited in instant claims 7-9 are different from those made by processes recited in instant claims 1-4. Accordingly, it appears that Kobayashi's triarylamine compound 21 is the same or substantially the same as the instantly recited triarylamine compound made by the methods using the phosphine compounds recited in instant claims 7-9. The burden is on applicants to prove otherwise. In re Marosi, 218 USPQ 289 (Fed. Cir. 1983); In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985); MPEP 2113.

14. Claims 1, 2, 5, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent 5-78261 (JP'261), as evidenced by CAPLUS abstract AN 1993:603127 and DERWENT abstract Acc. No. 1993-140306, both describing JP'261, and by the oral translation of JP'261, paragraph 0013, lines 4-5, provided by the USPTO's translation department.

JP'261 discloses an electrophotographic photosensitive member comprising an electrically conductive substrate and a photosensitive layer comprising a charge generation material and the charge transfer material triarylamine compound. See JP'261,

compounds 12, 40, 65, 71, and 96, and examples 1 and 2 in paragraphs 0115 to 0118; and the CAPLUS abstract. JP'261 discloses that the triarylamine compounds were synthesized by a method that meet the limitations recited in instant claims 1, 2, and 7. The compounds were synthesized by reacting an aminostyrene compound with a trihalobenzene compound in the presence of a base such as tributylamine and a catalyst comprising a palladium compound and a triarylphosphine compound. See the CAPLUS and DERWENT abstracts. JP'261 discloses that the triarylphosphine can be triphenylphosphine, tri-o-tolylphosphine, or tris (2-methyl-5-t-butylphenyl)phosphine. See the DERWENT and CAPLUS abstracts, and the USPTO oral translation of JP'261, paragraph 0013, lines 4-5. JP'261's triarylphosphine compounds meet the limitations of formula (1) recited in instant claims 1 and 7.

15. Claims 3, 4, 8, and 9 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP'261, as evidenced by CAPLUS abstract AN 1993:603127 and DERWENT abstract Acc. No. 1993-140306, both describing JP'261, and by the oral translation of JP'261, paragraph 0013, lines 4-5, provided by the USPTO's translation department.

JP'261, as evidenced by the CAPLUS and DERWENT abstracts and the USPTO translation, discloses an electrophotographic photosensitive member as described in paragraph 14 above, which is incorporated herein by reference.

Instant claims 3, 4, 8, and 9 are written in product-by-process format. Instant claims 3 and 4 recite that the triarylamine is obtained in the presence of the base alkali metal alkoxide [claim 4: sodium tert-butoxide]. Instant claims 8 and 9 recite that the triarylamine compound is obtained in the presence of a catalyst comprising a particular phosphine compound. JP'261 does not disclose that its triarylamine compounds are obtained by a catalyst comprising a phosphine compound as recited in instant claims 8 and 9. Nor does JP'261 disclose that the base used in its reaction is an alkali metal alkoxide. However, as discussed in paragraph 14 above, JP'261's arylamine compounds are synthesized by a method that meets the limitations recited in instant claims 1, 2, and 7. JP'261's also discloses that electrophotographic photosensitive members comprising its charge transfer triarylamine compounds have improved durability. See the DERWENT and CAPLUS abstracts. The instant specification discloses that when the charge transfer triarylamine compound is made by the method recited in instant claim 1, the photosensitive member comprising the resulting charge transfer compound exhibits endurance stability. Instant specification, page 5, lines 14-16,

page 5, line 23, to page 6, line 9, and Table 4, example 10. The instant specification contains no teachings that triarylamines made by the methods recited in instant claims 3, 4, 8, and 9 are different from those made by methods in claims 1, 2, and 7. Accordingly, it appears that JP'261's triarylamine compounds are the same or substantially the same as the instantly recited triarylamine compound made by the methods using the base recited in instant claims 3 and 4, or the phosphine compounds recited in instant claims 8 and 9. The burden is on applicants to prove otherwise. Marosi, supra; Thorpe, supra; MPEP 2113.

16. Claims 1-5 and 7-9 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 4,920,022 (Sakakibara).

Sakakibara discloses an electrophotographic photosensitive member comprising a charge generation material, and the charge transfer triarylamine compound I-2. Col. 3, line 2, and the first and second tables at col. 33, example 3.

Instant claims 1-5 and 7-9 are written in product-by-process format. These claims recite that the charge transfer triarylamine is obtained by reacting an amine compound with an aryl halide in the presence of the base and a catalyst comprising a palladium compound and a particular phosphine compound.

Sakakibara does not disclose that his triarylamine compound I-2

is obtained by such a method. Sakakibara, col. 11, line 34, to col. 12, line 46. The instant specification discloses that when the charge transfer triarylamine compound is made by the method recited in instant claim 1, the photosensitive member comprising the resulting charge transfer compound exhibits an endurance stability. Instant specification, page 5, lines 14-16, page 5, line 23, to page 6, line 9, and Table 4, examples 1-10. For example, Table 4 reports that after 30,000 copying operations, the photosensitive member in example 3 exhibited a variation in dark potential and light potential variation of -5 V and -15 V, respectively. Sakakibara also discloses that his electrophotographic photosensitive member comprising the charge transfer triarylamine compound I-2 has excellent durability to the repetition of the image forming process. Col. 2, lines 16-19, and second table at col. 33, example 3. The second table reports that after 50,000 successive image formation cycles, the variation in the dark potential and light potential were -10 V and 0 V, respectively. Accordingly, it appears that Sakakibara's triarylamine compound I-2 is the same or substantially the same as the instantly recited triarylamine compound made by the method recited in instant claims 1-5 and 7-9. The burden is on applicants to prove otherwise.

Marosi, supra; Thorpe, supra; MPEP 2113.

17. Claims 1-11 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 5,098,809 (Kikuchi).

Kikuchi discloses an electrophotographic photosensitive member comprising a charge generation material, and the charge transfer triarylamine compound 10 that meets the limitations of formula (2) recited in instant claim 6. Col. 4, line 60, and example 1 at cols. 10-11. Kikuchi further discloses that said photosensitive member can be used in an electrophotographic process cartridge or apparatus that both comprise the other components recited in instant claims 10 and 11. See Fig. 2 and col. 10, lines 1-59.

Instant claims 1-11 are written in product-by-process format. These claims recite that the charge transfer triarylamine is obtained by reacting an amine compound with an aryl halide in the presence of the base and a catalyst comprising a palladium compound and a particular phosphine compound. Kikuchi does not disclose that his triarylamine compound 10 is obtained by such a method. Kikuchi, col. 7, lines 29-42. The instant specification discloses that when the charge transfer triarylamine compound is made by the method recited in instant claim 1, the photosensitive member comprising the resulting charge transfer compound exhibits an endurance stability. The discussion of the instant specification in paragraph 16 above is

incorporated herein by reference. Kikuchi also discloses that his electrophotographic photosensitive member comprising the charge transfer triarylamine compound 10 has excellent durability to the repetition of the image forming process. Col. 2, lines 20-24, and Table 1, example 1. Table 1 reports that after 10,000 successive image formation cycles, the variation in the dark potential and light potential were -3 V and -4 V, respectively. Accordingly, it appears that Kikuchi's triarylamine compound 10 is the same or substantially the same as the instantly recited triarylamine compound made by the method recited in instant claims 1-11. The burden is on applicants to prove otherwise. Marosi, supra; Thorpe, supra; MPEP 2113.

18. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,430,526 (Ohkubo) combined with Kobayashi.

Ohkubo discloses an electrophotographic image forming apparatus comprising all the components recited in instant claim 11, but for the particular photosensitive member. Fig. 1, col. 2, line 56, to col. 3, line 56. Ohkubo also discloses a process cartridge which comprises all the components recited in instant claim 10, but for the particular photosensitive member. Fig. 2, col. 3, line 65, to col. 4, line 8. Ohkubo's discloses that the charging member is a contact charging roller. An

oscillating voltage is applied to the charging roller in the form of a DC-biased AC voltage. The peak-to-peak voltage of the oscillating voltage is not less than twice the absolute value of a charge starting voltage relative to the photosensitive member. Said oscillating voltage provides uniform charging. Ohkubo discloses that "uneven charging hardly occurs in a regular developer or a reverse development process." Col. 1, lines 36-42, col. 3, line 64, to col. 4, line 5, col. 4, lines 9-17.

Ohkubo does not disclose the use of the photosensitive member recited in the instant claims. However, Ohkubo does not limit the type of photosensitive member used. Col. 4, lines 29-35.

Kobayashi discloses an electrophotographic photosensitive member that meets the photosensitive member limitations recited in instant claims 10 and 11. The discussion of Kobayashi in paragraph 12 above is incorporated herein by reference.

Kobayashi further discloses that the conductive substrate of the photosensitive member can be a drum. Col. 21, lines 46-48.

Kobayashi discloses that his photosensitive member is a high-performance photosensitive member that exhibits a high carrier mobility, a high sensitivity, and low residual potential.

Col. 3, lines 1-6, and col. 55, lines 44-55, and Table 2, application example 5. Kobayashi discloses that high performance

photosensitive members are capable of copying at a higher printing speed. Col. 1, lines 44-49.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kobayashi, to use Kobayashi's photosensitive member as the photosensitive member in the apparatus and process cartridge disclosed by Ohkubo, because that person would have had a reasonable expectation of successfully obtaining an electrophotographic apparatus and process cartridge capable of providing copies at a high printing speed.

19. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohkubo combined with JP'261, as evidenced by CAPLUS abstract AN. 1993:603127 and DERWENT abstract Acc. No. 1993-140306, both describing JP'261, and by the oral translation of JP'261, paragraph 0013, lines 4-5, provided by the USPTO's translation department.

Ohkubo discloses an electrophotographic image forming apparatus comprising all the components recited in instant claim 11, but for the particular photosensitive member. Ohkubo also discloses a process cartridge which comprises all the components recited in instant claim 10, but for the particular photosensitive member. The discussion of Ohkubo in paragraph 18 above is incorporated herein by reference.

Ohkubo does not disclose the use of the photosensitive member recited in the instant claims. However, Ohkubo does not limit the type of photosensitive member used. Col. 4, lines 29-35.

JP'261, as evidenced by the DERWENT and CAPLUS abstracts and the USPTO oral translation, discloses an electrophotographic photosensitive member that meets the photosensitive member limitations recited in instant claims 10 and 11. The discussion of JP'261 in paragraph 14 above is incorporated herein by reference. JP'261 further discloses that its photosensitive member has high sensitivity and improved durability. See the DERWENT and CAPLUS abstracts.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of JP'261, to use JP'261's photosensitive member as the photosensitive member in the apparatus and process cartridge disclosed by Ohkubo, because that person would have had a reasonable expectation of successfully obtaining an electrophotographic apparatus and process cartridge having high sensitivity and improved durability.

20. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohkubo combined with Sakakibara.

Ohkubo discloses an electrophotographic image forming apparatus comprising all the components recited in instant claim 11, but for the particular photosensitive member. Ohkubo also discloses a process cartridge which comprises all the components recited in instant claim 10, but for the particular photosensitive member. The discussion of Ohkubo in paragraph 18 above is incorporated herein by reference.

Ohkubo does not disclose the use of the photosensitive member recited in the instant claims. However, Ohkubo does not limit the type of photosensitive member used. Col. 4, lines 29-35.

Sakakibara discloses an electrophotographic photosensitive member as described in paragraph 16 above, which is incorporated herein by reference. As discussed in paragraph 16, Sakakibara discloses that its photosensitive member has excellent durability after many repeated image formations.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Sakakibara, to use Sakakibara's photosensitive member as the photosensitive member in the apparatus and process cartridge disclosed by Ohkubo, because that person would have had a reasonable expectation of successfully obtaining an electrophotographic apparatus and process cartridge having excellent durability to repeated image formation.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (703) 308-3625. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Nam Nguyen, can be reached on (703) 308-3322. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9311 (Rightfax) for after final faxes, and (703) 305-7718 for other official faxes.

Any inquiry of papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Alva Catlett, whose telephone number is (703) 308-1100.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

JLD
December 2, 2001

Janis L. Dote
JANIS L. DOTE
PRIMARY EXAMINER
GROUP 1589-
1700